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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DMITRY LUOMIRSKY
and MICHAEL X. YANG

Appeal 2007-3942
Application 10/781,040
Technology Center 1700

Decided: March 13, 2008

Before BRADLEY R. GARRIS, THOMAS A. WALTZ, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-6, 8-10, 12-16, and 19-26. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

Appellants claim a method for immersing a substrate into a fluid solution comprising: loading a substrate into a receiving member; displacing

the substrate/receiving member toward the fluid solution at a first tilt angle; tilting the substrate/receiving member to a second tilt angle different from the first when the substrate contacts the fluid solution; and positioning the substrate at a processing angle such that the substrate plating surface is substantially parallel to the surface of an anode in the solution, wherein the anode is tilted between about 3° and about 30° (claim 1). According to Appellants, the method minimizes plating defects by minimizing bubble formation and adhesion to the substrate surface during the immersion process (App. Br. 7).

Representative claim 1 reads as follows:

1. A method for immersing a substrate into a fluid solution having an anode placed therein, comprising:

loading a substrate into a relieving member,

tilting the receiving member to a first tilt angle measured from horizontal;

displacing the receiving member toward the fluid solution at the first tilt angle;

tilting the receiving member to a second tilt angle measured from horizontal when the substrate contacts the fluid solution, the second tilt angle being different from the first tilt angle; and

positioning the substrate at a processing angle such that a plating surface of the substrate is positioned substantially parallel to a surface of the anode placed in the fluid solution, wherein the anode is tilted between about 3° and about 30°.

The references set forth below are relied upon by the Examiner as evidence of obviousness:

Wang	US 2002/0084189 A1	Jul. 4, 2002
Sendai	US 2003/0057098 A1	Mar. 27, 2003
Dordi	6,582,578 B1	Jun. 24, 2003

Claim 25 is rejected under the first paragraph of 35 U.S.C. § 112 as failing to comply with the written description requirement. According to the Examiner, the claim limitation "wherein the anode is not tilted" is not descriptively supported by Appellants' original disclosure (Ans. 3-4).

Claims 1-4, 8, 9, 12-16, and 20-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dordi in view of Sendai. The Examiner finds that the anode of Dordi is horizontal rather than tilted as required by representative claim 1 but concludes that it would have been obvious for one with ordinary skill in this art to provide Dordi's anode with a tilt in view of Sendai (Ans. 5).

Claims 5, 6, 10, and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dordi in view of Sendai and further in view of Wang. The Examiner concludes that it would have been obvious for an artisan to vibrate or oscillate the substrate of Dordi as required by the rejected claims in view of Wang (Ans. 10).

For the reasons expressed in the Answer and below, we will sustain each of the above noted rejections.

The § 112 Rejection

Appellants argue that the claim 25 limitation "wherein the anode is not tilted" is descriptively supported because paragraph [0028] of their Specification incorporates by reference the disclosure of commonly assigned U.S. Patent Application 10/268,284 which discloses in paragraph [0024] that "[p]lating cell 100 may be horizontally positioned or positioned in a tilted orientation" (App. Br. 11-12; Reply Br. 2). As correctly pointed out by the Examiner, however, "[a] plating cell that is horizontally positioned does not necessarily mean that the anode is not tilted" (Ans. 10). For this reason, we determine that the afore-quoted disclosure would not convey, with reasonable clarity to those skilled in this art, that Appellants, as of the filing date sought, were in possession of the invention defined by claim 25 "wherein the anode is not tilted." *See Vas-Cath, Inc. v. Muhurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991).

We sustain, therefore, the § 112, first paragraph, rejection of claim 25 as failing to comply with the written description requirement.

The § 103 Rejections

With respect to each of the Examiner's § 103 rejections, Appellants argue that the applied prior art "does not teach, show, or suggest tilting a receiving member and positioning a substrate to a first tilt angle, a second

tilt angle, and a processing angle, as required in claims 1, 8, 15, 23, and the claims dependent thereon" (App. Br. 14; *see also* App. Br. 16, and Reply Br. 4, 7).¹ This argument is unpersuasive.

Appellants' argument is based on their belief that Dordi "discloses the substrate being held at two positions, a first angle position and a second horizontal position" (App. Br. 13; Reply Br. 3). This belief is incorrect. Rather, Dordi discloses positioning the substrate at first and second tilt angles prior to being positioned horizontally so as to be parallel with patentee's horizontal anode (Dordi, Fig. 30 showing α_1 and α_2 tilt angles) as explained by the Examiner (Ans. 4-5, 11-12). As further explained by the Examiner, when modified to have a tilted rather than horizontal anode as taught by Sendai (which is not disputed by Appellants), Dordi's method would then include a final positioning of the substrate at a processing angle so as to achieve parallelism between the substrate and tilted anode as required by claim 1 (Ans. 11-12). Therefore, the combined teachings of Dordi and Sendai would have suggested each of the three angles argued by Appellants. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (test for

¹ In addition to this argument, Appellants reiterate the limitations contained in each of independent claims 1, 8, 15, and 23 (App. Br. 14-16; Reply Br. 4-6). However, "[a] statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim" (37 CFR § 41.37(c)(1)(vii)(2004)). For this reason, we determine that Appellants have not separately argued the independent claims (or the dependent claims). Therefore, in assessing the merits of the § 103 rejections, we will focus on representative independent claim 1 since it is the broadest claim on appeal with respect to the limitations argued by Appellants.

obviousness is what combined teachings of references would have suggested to those with ordinary skill in the art).

The Examiner's obviousness conclusion is additionally supported by our following findings. Dordi teaches positioning the substrate at tilt angles α_1 and α_2 as the substrate is immersed in the electrolyte solution and eventually disposed parallel the anode (col. 37, ll. 35-58; col. 38, ll. 1-48). However, in these positioning and disposing steps, the substrate tilt necessarily is changed gradually rather than instantaneously from one angle (e.g., α_1) to the next (e.g., α_2) (*id.*). Therefore, Dordi's method includes tilting the receiving member and substrate carried thereby at multiple tilt angles beyond the first and second tilt angles required by claim 1.

Also supporting the Examiner's obviousness conclusion is the scope of claim 1 when given its broadest reasonable interpretation consistent with the Specification as required during examination proceedings. *See In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). This is because claim 1 does not require the processing angle to be different from the second tilt angle. That is, these two angles may be the same when claim 1 is given its broadest reasonable interpretation. Under this interpretation, claim 1 requires only two angles (i.e., a first tilt angle and a second tilt angle identical to a processing angle) rather than three angles according to Appellants' argument.

For these reasons and those expressed in the Answer, we sustain the § 103 rejection of claims 1-4, 8, 9, 12-16, and 20-26 as being unpatentable over Dordi in view of Sendai as well as the (not separately argued) § 103

rejection of claims 5, 6, 10, and 19 as being unpatentable over Dordi in view of Sendai and further in view of Wang.

Conclusion

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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